

REMARKS

Claims 1-57 are pending. Claims 37-40 were withdrawn in response to a restriction requirement. Claims 1-8, 12-36 and 41-57 stand rejected. Claims 9-11 are indicated allowable if rewritten in independent form.

Claims 37-40 are cancelled without prejudice to presenting same in a divisional application. Claims 1, 4, 16, 20, 23-29 and 31 are amended. Claim 10 is canceled. Claims 58-61 are added. No new matter is added. Claims 1-9, 11-36, and 41-61 remain for consideration.

Reconsideration and allowance of the pending claims is requested in light of the amendments and the following remarks.

Claims 1-8, 12-36 and 41-57 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Faulk '641 and claims 18 and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Faulk. The applicant respectfully traverses the rejections and requests reconsideration.

Claim 1 has been amended to include the limitations of allowable claim 10. Consequently, claim 1 is in condition for allowance and allowance is respectfully requested.

Claims 2-9 and 11-19 all depend from claim 1 and, for at least the reasons specified for claim 1, these claims are also in condition for allowance. Allowance is respectfully requested.

Regarding amended claim 4, the claim has been amended to clarify that the power generator apparatus operates in both flyback and forward conversion modes during the second phase. This language is supported in the specification as filed at page 17, lines 1 and 2. The apparatus in Faulk only uses the flyback mode (see Faulk column 4, lines 42-45). Consequently, Faulk does not teach each and every limitation of amended claim 4. Amended claim 4 is in condition for allowance and allowance is respectfully requested.

New independent claim 58 is based on original claim 1 and claim 4, as amended, presented in independent form. Claim 58 should be allowable for at least the reasons discussed for amended claim 4 above.

The examiner indicated that claim 9 is allowable in independent form. New claim 59 is based on original claims 1, 2, and 9 presented in independent form.

Claim 10 is cancelled, all of the limitations of which have been incorporated into amended claim 1.

The examiner indicated that claim 11 is allowable in independent form. New claim 60 is based on original claims 1, 2, and 11 presented in independent form.

Regarding amended claim 16, the claimed elements include a transformer, with primary and secondary windings, and an inductor. Faulk discloses a transformer (100), with primary (102) and secondary (104) windings, but no separate inductor (see Faulk FIG. 3A). Faulk does name element 104 an inductor, but it is clear that the inductor is actually the secondary winding of the transformer (see Faulk Col. 3, lines 60-63). The inductor of Faulk could not be the same as the inductor in claim 16 because the secondary of the transformer in claim 16 is separated from the inductor by the plurality of diodes. Further, claim 16 claims plural diodes operatively coupled to said secondary winding to perform a rectification function. Faulk does not have plural diodes coupled to the secondary winding of the transformer. Faulk has a transistor 116 (used for switching, not rectification; see Faulk Col. 4, line 57 through Col. 5, line 2) and a Zener diode 154. Consequently, Faulk does not teach each and every limitation of claim 16. Claim 16 is in condition for allowance and allowance is respectfully requested.

New independent claim 61 is based on original claims 1 and 16 presented in independent form. Claim 61 should be allowable for at least the reasons discussed for claim 16 above.

Claim 17 depends from claim 16 and is likewise in condition for allowance.

Regarding claims 18 and 19, the office action proposes that it would have been obvious to connect an extra output onto the device of Faulk. However, that is not what is claimed in claims 18 and 19. Claims 18 and 19, as depending from claim 16, claim a device that has an inductor connected, via a plurality of diodes, to the secondary side of a transformer and other circuit elements for energy sharing. Had an extra inductor been wired into the circuit of Faulk, not only would the circuit have been incapable of performing the desired function (zero-crossing detection), the circuit would have been uncontrollable and useless for both the application of Faulk and the application of claims 18 and 19. Consequently, it would not have been obvious to make the apparatus claimed in claims 18 and 19 by modifying the device of Faulk. Further, the applicant disagrees with the examiner's taking of official notice that utilizing a full wave voltage rectifier for a dual output secondary would reduce strain on circuit elements. The applicants do not agree that this conclusion is "capable of such instant and unquestionable demonstration as to defy dispute". MPEP 2144.03. Claims 18 and 19 are in condition for allowance and allowance is respectfully requested.

Regarding amended claim 20, the applicant is unclear as to why the examiner rejected claim 20. However, claim 20 has been amended to include the subject matter of allowable

claim 11. Faulk does not teach a switching means based off of the reflected output voltage. Consequently, amended claim 20 is in condition for allowance and allowance is respectfully requested.

Claims 21-36, which depend from claim 20 are allowable for at least the reasons stated above for claim 20 as well as the reasons stated below.

Further regarding claims 21-23, Faulk makes no mention of the relationship between the operating frequencies in the apparatus it is disclosing. Consequently, claims 21-23 are patentably distinct from the apparatus of Faulk. Therefore, claims 21-23 are in condition for allowance and allowance is respectfully requested.

The preambles of claims 23, 24, and 26-28 are amended to be consistent with base claim 20.

Claims 25 and 29 are amended to make their references to first phase and second phase consistent with those of base claim 20.

Claim 24 is allowable in its own right for the reasons discussed above with respect to claim 16. The last clause of claim 24 is deleted because that clause is redundant of the subject matter of claim 11 added to base claim 20.

Regarding amended claim 31, claim 31 has been amended to clarify that the abbreviation THC stands for total harmonic content in the AC input current.

Regarding claim 41, the office action proposes that since the claimed invention has all the same elements of Faulk, the Faulk device will inherently perform the claimed method. However, as discussed above, the Faulk device does not contain all of the same elements of the claimed invention. Because of these component differences, the Faulk device is incapable of providing a sinusoidal current at the input of the device. Therefore, the claimed method could not be inherent in the Faulk disclosure. Additionally, claim 41 includes material from claim 9 (for instance, the comparison of the input voltage with the reflected output voltage), which the examiner had previously indicated was allowable. Further, the apparatus in Faulk only uses the flyback mode (see Faulk column 4, lines 42-45), while claim 41 claims both flyback and forward current. For at least these reasons, the device of Faulk could not inherently perform the method of claim 41. Consequently, claim 41 is in condition for allowance and allowance is respectfully requested.

Claims 42-57, which depend from claim 41, are allowable for at least the same reasons stated above for claim 41 as well as the reasons stated below.

Further regarding claims 42 and 43, Faulk makes no mention of the relationship between the operating frequencies of the apparatus disclosed therein. Consequently, claims 42 and 43 are in condition for allowance and allowance is respectfully requested.

Further regarding claims 44-47 and 50, Faulk makes no mention of what the duty cycle or maximum duty cycle of the disclosed apparatus is. Consequently, claims 44-47 and 50 are in condition for allowance and allowance is respectfully requested.

Further regarding claim 48, Faulk does not disclose that the current has an average in the flyback mode which increases proportionately with voltage. Consequently, claim 48 is in condition for allowance and allowance is respectfully requested.

Further regarding claims 49 and 50, Faulk does not disclose the basis for determining the duty ratio in the apparatus disclosed. Consequently, claims 49 and 50 are in condition for allowance and allowance is respectfully requested.

Further regarding claims 51-53 and 55, these claims add an element (the inductor), to the method of claim 41. Faulk does not disclose an inductor coupled via a plurality of diodes to the secondary of the transformer. Consequently, claims 51-53 and 55 are in condition for allowance and allowance is respectfully requested.

Further regarding claim 56, Faulk does not disclose a maximum duty cycle of 50% or use of the reflected output voltage. Consequently, claim 56 is in condition for allowance and allowance is respectfully requested.

In view of the foregoing amendments and remarks, applicant believes the application should be in condition for allowance. If any questions remain, the Examiner is requested to call the undersigned.

Respectfully submitted,

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